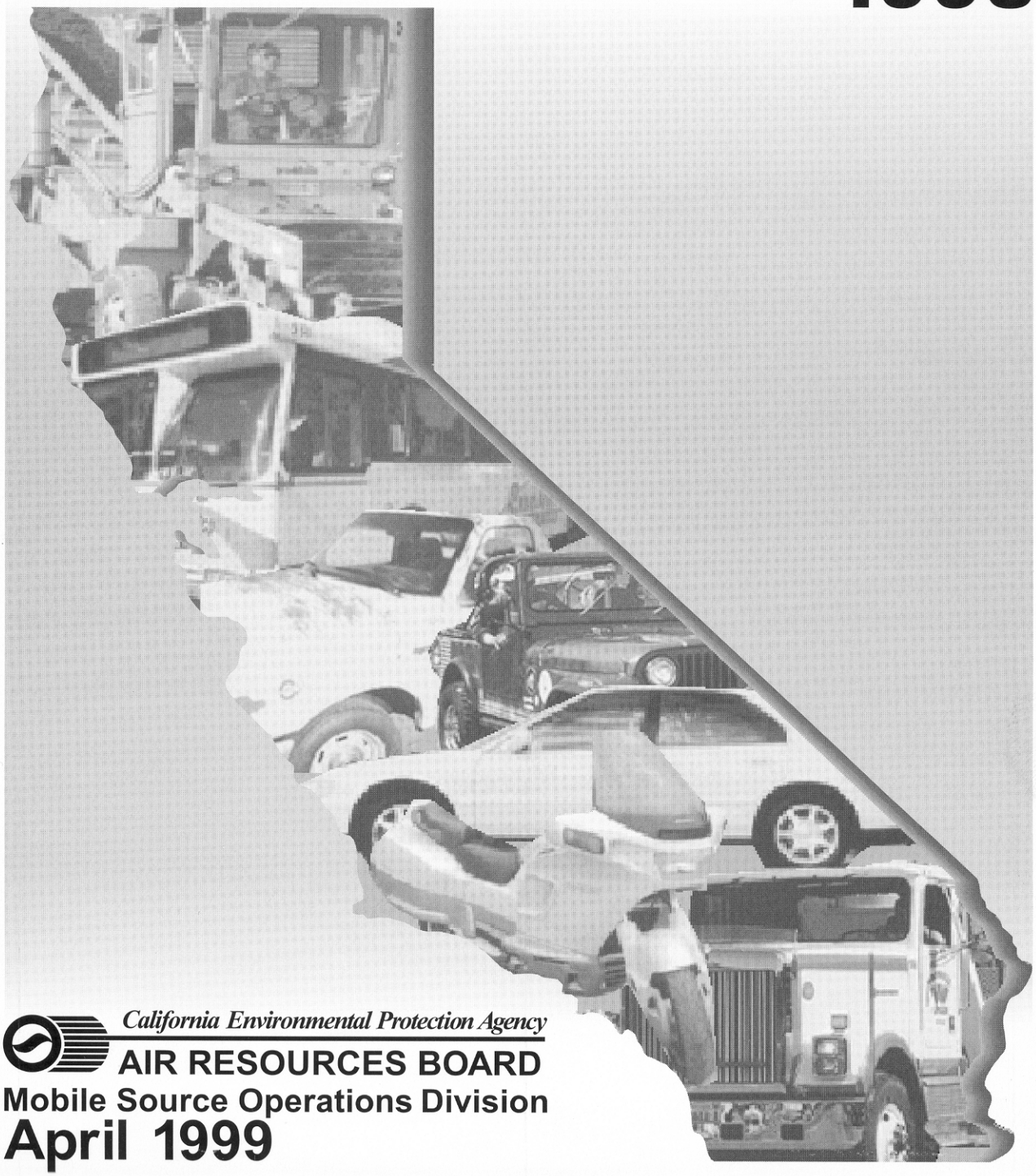
Mobile Source Program Compliance Report 1998



California Environmental Protection Agency
AIR RESOURCES BOARD
Mobile Source Operations Division
April 1999

1998 Mobile Source Program Compliance Report

California Environmental Protection Agency
Air Resources Board
Mobile Source Operations Division
April 1999

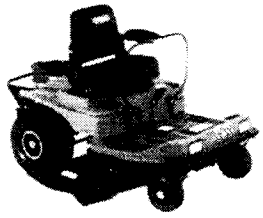
Table of Contents

Introduction

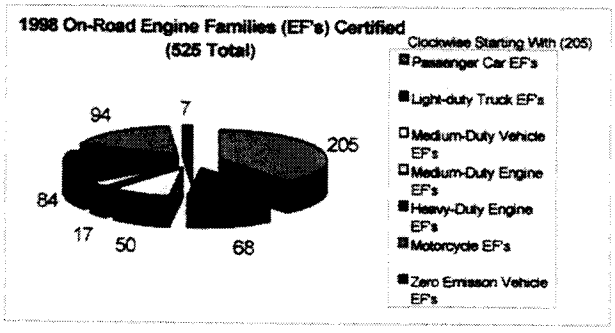
The Air Resources Board (ARB) is responsible for controlling emissions from mobile sources in California. Due to the huge scope of mobile sources in California and their contribution to over half of our state's air quality problem, the task of ensuring compliance of these vehicles and engines when they are new, and throughout their useful life, is a critical component of the ARB's mobile source program.

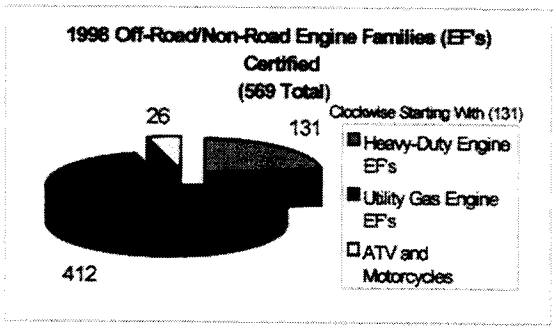
Currently, there are over 25.5 million vehicles registered in California. During 1998 alone, an additional 1.78 million new on-road vehicles were delivered to California. In addition to this substantial volume of passenger cars, trucks, and motorcycles, off-road and non-road categories recently coming under ARB regulatory programs contribute significantly to the mobile source emissions inventory. The new off-road and non-road sources include: recreational vehicles, small utility engines, diesel engines and equipment, gasoline engines and equipment, marine pleasure craft, and off-road engine aftermarket parts.

EXAMPLES OF OFF-ROAD/NON-ROAD CATEGORIES



During 1998, the volume of off-road vehicles and non-road engines sold in California totaled over 2.2 million engines. The volume of vehicles and engines certified for sale in California is substantial, and this number continues to increase each year as new regulatory programs bring more categories into the mobile source program. During 1998, a total of (1,094) engine families were certified for sale in California. Each engine family represents a grouping of vehicles or engines that share common emission control technology and show similar emissions characteristics. The following charts describe in detail the statewide break down of categories within the on-road and off-road/non-road programs:





The ARB's programs to ensure compliance of these vehicles and engines from the time they are certified and throughout their useful life is the focus of this report. As the ARB continues to develop new regulations, the enforcement element of the mobile source program needs to remain a high priority to ensure that the maximum emissions benefits are being obtained toward achieving the goals of the State Implementation
Plan (SIP).

Current Compliance Programs

The ARB's Mobile Source Operations Division (MSOD) is responsible for the majority of the mobile source program compliance and enforcement activities. The focus of most of the division's programs are in the areas of manufacturer compliance and compliance assistance; however, sometimes these programs crossover from compliance assurance to an enforcement action. During this transition, MSOD staff works closely with the ARB's Office of Legal Affairs to develop and settle the cases in lieu of litigation. A successful compliance program must be backed by fair and effective enforcement, and if a settlement is unsuccessful, the ARB's Office of Legal Affairs will work with the Attorney General's Office or a local District Attorney to pursue a violator through the litigation process. Pursuing these cases not only benefits air quality; it also provides equity to those in the regulated community that work hard to remain in compliance.

The MSOD conducts programs to ensure compliance of new and in-use on-road vehicles, new small and heavy-duty off-road/non-road engines, aftermarket parts, heavy-duty diesel trucks and buses, illegal vehicle enforcement, dealership and fleet anti-tampering inspections, California emissions warranty repairs, and On-Board Diagnostics (OBD) II system testing. The following discussion highlights the six sections within MSOD and one section within the Mobile Source Control Division (MSCD) that are responsible for these programs:

1. Certification Section

All of the new vehicles and most engines (engine families) that enter commerce in California must be certified by the ARB as meeting California's exhaust and evaporative emissions standards and durability requirements. To ensure that these requirements are met prior to sale in California, the Certification process is the first line in ARB's mobile source Compliance Program. The Certification section evaluates manufacturers' certification applications for new on-road and off-road vehicles (and engines used in these vehicles), and non-road engines to ensure compliance with California's requirements and emission standards. In addition to the numeric emissions limitations or standards for Nonmethane Hydrocarbons (NMHC), Carbon Monoxide (CO), Oxides of Nitrogen (NOx), diesel particulates/smoke, and formaldehyde, these requirements include: a useful life durability and deterioration demonstration, emissions compliance demonstration, California warranty, emissions labeling, fuel fillpipe specifications, on-board diagnostics, and high altitude compliance. The manufacturers provide an application package for each engine family that includes test data from demonstration and durability vehicles or engines along with all of the applicable engineering support data for the emission control systems. Working closely with the vehicle and engine manufacturers, this package is reviewed by an ARB certification engineer for each of the requirements outlined above. If an engine family meets all of the requirements, the MSOD issues the engine family an Executive Order (EO) allowing the sale of vehicles and engines in California. All of this information is maintained in the certification database (certification data, Low Emission (LEV) – Ultra-Low Emission (ULEV) – Zero Emission (ZEV) vehicle lists, and alternate fuel lists) to support policy and regulation development, public inquiries, and enforcement assistance to other ARB groups.

Compliance/Enforcement Authority:
Health and Safety Code (HSC) Sections:
43151-53 - prohibits the importation, sale, and use of new non-California certified vehicles;

43154 - provides up to $5000 for each violation of HSC §43151-53;

43016 - ensures a civil penalty of up to $500 for each vehicle or engine in violation of Part 5 (Commencing with HSC §4300)

1997/98 Enforcement Actions and Settlements:

Manufacturer: General Motors
Violation: Sold (19) new non-California certified Pontiac Grand-Am cars in California
Settlement: ARB Legal settlement of $98,000 to the Air Pollution Control Fund
(Note: This case was initiated and handled by the In-Use Compliance Section)

2. Vehicle/Engine Audit Section

While the Certification section ensures compliance prior to production, the main focus of the Vehicle/ Engine Audit section is to ensure that each certified engine family complies with the applicable emission standards at the time of production. This is a critical point in the compliance process, because identifying a violation early can prevent or limit the sale and use of non-complying engines in California and their associated air quality impact.

Currently, manufacturers who certify an engine family for sale in California are required to implement a quality audit program. For passenger cars, light trucks, and medium-duty vehicles, this program includes a requirement to randomly test a statistically valid sample of their California-destined assembly-line production using the Federal Test Procedure (FTP – the official ARB and U. S. Environmental Protection Agency certification test). Additionally, 100 percent of the emissions control and OBD II systems must be functionally tested. Off-road heavy-duty diesel and utility engine manufacturers are required to implement a similar assembly-line audit program using an engine dynamometer test. The data from the quality audit testing is provided to the ARB on a quarterly basis. During 1998, the Vehicle/Engine Audit section reviewed the quarterly reports of eighty-seven on and off-road and non-road engine manufacturers with testing on results from over seven hundred and fifty engine families. The ARB review process includes: verifying compliance with the certification standards, verifying that the sampling requirements are met, monitoring the repair of failing vehicles and engines, and working with manufacturers that have failing engine families to ensure appropriate corrective action is taken. This process culminates in ARB quarterly reports summarizing the production and emission averages for each manufacturer and their specific engine families.

In conjunction with the vehicle and engine quality audit activities, the section conducts compliance testing at the ARB's Haagen Smit Laboratory (HSL). This testing compliments the quality audit review by verifying the manufacturers' audit test results. The ARB selects an engine family based on the audit data and other input and randomly selects five vehicles from the selected manufacturers' distribution center. The selected vehicles are sealed to prevent any alteration, and they are delivered to the HSL and tested using the FTP. The manufacturer usually has one or more representatives on site during the testing process. If the sample fails, the manufacturer is required to implement a corrective action and recall any affected vehicles or engines. The MSOD tests an average of ten new passenger and light truck engine families each year. However, due to the renovation of several test cells at the HSL, only one engine family was tested in 1998 – a General Motors' MDV2 truck engine family which passed compliance testing. Although regulatory authority exists to compliance test all engine families and groups subject to audit, including small and large off-road engines, our current test facilities at HSL only allow testing of light and medium-duty vehicles.

The ARB also has authority to visit manufacturers' factories and test facilities to verify their audit and test procedures. Although the ARB's travel costs are reimbursable by the manufacturers, the limitations on out-of-state travel have curtailed this program at the present time.

Compliance/Enforcement Authority:
Health and Safety Code Sections:
43211 - provides up to $5000 per action for emission standard violations;

43212 - provides $50 per vehicle for emission standard test procedure violations;

43105 - procedures for recall of motor vehicles that fail California's emission standards;

43016 - provides up to $500 for each vehicle or engine in violation

1997/98 Enforcement Actions and Settlements:

Manufacturer:	Mitsubishi Motors
Violation:	Failed to report aborted and failed emissions tests and diluted emissions samples with ambient air
Settlement:	ARB Legal settlement includes $250,000 to the Air Pollution Control Fund, and a management plan to prevent similar problems in the future

Manufacturer:	Ford Motor Company
Violation:	Defeat device allowed reduced NOx control (lean mixture) at higher vehicle speeds
Settlement:	ARB Legal settlement includes: $250,000 to the Air Pollution Control Fund, $100,000 to the Imperial County District Attorney's Office (Envir. Crimes Unit), and a voluntary recall of identified engine families for corrective action

Manufacturer:	Tecumseh (utility engines)
Violation:	Poor quality audit allowed non-complying engines to be sold in California
Settlement:	Currently under negotiation

3. In-Use Compliance Section

One of the major efforts of the ARB is to ensure that California certified engine families remain in compliance not only when they are new - but throughout their useful life. Over the last fifteen years, the In-Use Compliance program has been instrumental in encouraging manufacturers to build durable emission control systems.

The In-Use Compliance section conducts in-use testing of consumer owned vehicles at an ARB contracted laboratory covering approximately forty engine families each year. The engine family group selection is based on a number of factors including input from the ARB's certification and quality audit data. The ARB provides the contractor with a list of vehicles that are included in the selected engine family group. The contractor sends out letters to the vehicle owners requesting their participation in the program. The incentives include monetary compensation and the use of a rental vehicle during the time the owner's vehicle is being tested. The first five responses which meet the following procurement criteria are selected for testing: the vehicle must have the proper engine family, the vehicle must be properly maintained, have between 30,000 miles and 75 percent of certified-useful life mileage (usually 75,000 miles), and had no major repairs or accidents. In the presence of ARB staff and the manufacturers' representative(s), the five selected vehicles undergo restorative maintenance which includes: checking the computer for any stored fault codes, checking for obvious signs of tampering, and adjusting all parameters to the manufacturers' factory specifications. The fully prepared vehicles are tested using the standard Federal Test Procedure and applicable evaporative emission test procedure. The vehicles must meet the in-use emission standards for the appropriate model year (certification standards corrected with a normal deterioration factor).

If an engine family fails the testing, the In-Use Compliance section typically negotiates a corrective action with the manufacturer that includes a recall of the affected vehicles. If necessary, the recall process may be ordered by the ARB, and where appropriate, ARB assesses civil penalties (or settlements in lieu of civil penalties). All recall campaigns are monitored by the ARB and are tied into the Department of Motor Vehicles registration process. Any vehicles included in the recall campaign that are not repaired, are blocked from renewing their registration until the recall repairs are completed. The chart on Attachment 1 lists the in-use testing statistics from 1990 - 1998. The number of recalls each year includes both manufacturer and ARB initiated recalls. When the program began in 1983, almost 100 percent of the tested engine families failed. Since 1992, the number of recalls has continued to decrease each year. For a

manufacturer, an in-use recall can be very costly in terms of both money and customer relations. To avoid this, manufacturers are continuing to build more durable emission control systems, which translates into long term air quality benefits. Based on the success of the light-duty in-use test program, the In-Use Compliance section has started a similar in-use test program for medium-duty engines in 1998. The ARB selects the three top selling medium-duty engines sold in California, and the manufacturer is responsible for procuring and testing five representative engines. The testing is conducted on an engine dynamometer under the supervision of an ARB engineer. The same corrective action and recall provisions from the light-duty program are applied to the medium-duty engine program. The three engine manufacturers selected for 1998 are Ford, Navistar, and Cummins. All three have completed and passed the in-use testing.

The In-use Compliance section also maintains the California Emissions Warranty Repair database. On a quarterly basis, each light-duty manufacturer is required to report to the ARB on the types and frequency of emissions related repairs by their franchised dealerships. When the failure rate of an emissions control component or system exceeds four percent, the manufacturer may be required to provide a corrective action plan and possible recall for all affected vehicles. However, the vehicle manufacturers will often initiate their own service campaign to correct the problem before the four percent threshold is exceeded. The ARB closely monitors these reports and audits dealer repair records to verify the emissions repair reporting. During 1998, this program initiated seven emissions related recall campaigns resulting in the repair of some 130,000 vehicles.

Compliance/Enforcement Authority:
Health and Safety Code Sections:
43105 - procedures for the recall of motor vehicles and engines;

43211 - provides up to $5000 per action for emission standard violations;

43016 - provides up to $500 for each vehicle or engine in violation

1997/98 Enforcement Actions and Settlements:

Manufacturer:	General Motors
Violation:	4.3 liter truck engine family failed in-use testing with no GM corrective action
Settlement:	Currently in adjudication

4. Mobile Source Control Division/Advanced Engineering Section

The Advanced Engineering Section, under the ARB's Mobile Source Control Division, developed the regulations for California's On-Board Diagnostics II (OBD II) system requirements. The OBD II systems have been incorporated into the computers of new cars and trucks since 1996 to monitor emissions control components and systems that will affect emissions if they malfunction. The OBD II systems monitor virtually every component that can affect the emissions performance of the vehicle. If a problem is detected, the OBD II system illuminates the "Check Engine" or other warning lamp to alert the driver of a possible emissions control malfunction. The ODB II system also stores important information about the detected malfunction so that a repair technician can accurately identify and fix the problem.

Advanced Engineering Section staff has worked closely with motor vehicle manufacturers during the implementation of OBD II monitoring systems. The transition from regulations to fully functional and reliable mass produced OBD II systems has been successful in large part due to the engineering expertise and manufacturer support provided by the ARB's Advanced Engineering Section. Now that OBD II systems are a part of new cars and trucks, the section is focusing their expertise on field testing each manufacturers' OBD II systems. The section operates a field test program to determine if each manufacturers' OBD II system performs as it should. The chart on Attachment 4 lists the vehicles that have been included in the field test program. The manufacturers have provided some of these vehicles, however most are rental vehicles to ensure non-biased testing. The field test program has discovered problems with

several manufacturers' OBD II systems. If the problems are unintentional, staff will work closely with the manufacturer to resolve the issues. However, several enforcement actions have been initiated due to intentional efforts by manufacturers to defeat or avoid one or more of the OBD II monitoring functions. In addition to the cases listed below, several other cases are pending. This program will continue as a real world audit of manufacturers' production vehicle OBD II systems.

1997/98 Enforcement Actions and Settlements:

Manufacturer:	Honda
Violation:	OBD II system deficiencies affecting 1995 - 1997 OBD II equipped vehicles
Settlement:	ARB Legal settlement includes: $6,000,000 fine - divided into $3.5 million in supplemental environmental projects and $2.5 million to Air Pollution Control Fund
Manufacturer:	Saab
Violation:	1998 OBD II system deficiencies
Settlement:	$9,925 to the Air Pollution Control Fund
Manufacturer:	Mazda
Violation:	1998 OBD II system deficiencies
Settlement:	$70,950 to the Air Pollution Control Fund

5. Aftermarket Parts Section

California law (Vehicle Code §27156 and §38391 and HSC §43006) and the Federal Clean Air Act prohibit any modifications that would degrade or reduce the function of a vehicle's original emissions control system. However, if properly designed, many aftermarket parts do not increase vehicle emissions, and these laws provide a mechanism for the ARB to exempt or certify aftermarket parts or retrofit systems which the manufacturers have proven do not increase vehicle emissions.

The Aftermarket Parts section evaluates applications submitted by aftermarket manufacturers to ensure that their devices do not reduce the effectiveness of the original emission control systems. All of the aftermarket parts sold in California fall into one of three groups:

Replacement Parts - replacement parts are made by aftermarket manufacturers to replace an Original Equipment Manufacturer (OEM) part. These parts are legal for sale in California if they are functionally identical to the part they are replacing. An example of an aftermarket replacement part is a replacement Exhaust Gas Recirculation (EGR) valve. The function of the EGR valve is identical to the OEM factory part, however there is usually a substantial cost savings over the OEM factory part.

Exempted Parts - exempted parts are add-on or modified parts that have been evaluated by an ARB engineer and have been determined not to increase vehicle emissions for a specific application. The part must also be completely compatible with any OBD systems. If the data demonstrates these facts, the manufacturer is granted an exemption to VC 27156 for the specific application. This exemption is formalized as an EO, and allows the modification to be installed on specific emission controlled vehicles. Every EO is assigned a unique identification number that the manufacturer must provide as an underhood label or decal. A list of exempted parts is also made available to the Bureau of Automotive Repair to ensure that vehicles do not falsely fail the visual anti-tampering portion of Smog Check.

Competition Use Only - competition or racing parts are those that have not been proven by their manufacturers to not increase vehicle emissions. These parts are not legal for use on any pollution-controlled vehicle in California, and they are required to be labeled as such when they are offered for sale. These parts may only be used on closed course racing or competition vehicles, or on off-road vehicles manufactured prior to the ARB's introduction of off-road emissions standards.

During 1998, the Aftermarket Parts section received (103) applications for review and issued (145) EO's to (120) different manufacturers allowing the sale of an aftermarket part for a specific application. These figures will be increasing substantially over the next year, as off-road aftermarket parts are now required to be exempted or certified for sale in California.

The Aftermarket Parts section also certifies retrofit systems for sale in California. The criteria for certification includes demonstrating durability and emissions at or below the applicable standards throughout the useful life, compatibility with OBD I and OBD II systems, manufacturer and installer warranty, ARB installation inspection, and in-use compliance testing. An example of currently certified retrofit systems are a closed loop feedback control/3-way catalyst system and alternate fuel conversions.

In addition to evaluating aftermarket parts, the section issues experimental permits which allow the operation of experimental vehicles in California which may not meet California's emissions standards. These permits are often requested by manufacturers to evaluate new emissions control technology over unique environmental conditions such as California's Death Valley. The applicant, usually a major vehicle manufacturer, needs to demonstrate the need to use a non-complying vehicle in California. If the need is justified, the section will issue a one year permit for specific vehicles identified by their Vehicle Identification Number (VIN). At the completion of the test program, the permitted vehicles are required to meet the applicable California emission standards or be removed from the state.

Compliance/Enforcement Authority:
Health and Safety Code Sections:
43014 - issuance of experimental permits;

43016 - provides up to $500 for each vehicle or engine in violation

Vehicle Code §27156 - prohibits tampering of emission control systems

Business and Professions Code §17206 - provides up to $2,500 civil penalty for each violation

6. Field Inspection/Testing Section

Often compliance activities require field verification and inspection capabilities. The Field Inspection/Testing section conducts the majority of light-duty vehicle field inspections and investigations, both in support of its own programs, and in support of other sections within the ARB.

In the past, the section has focused a large share of its resources on anti-tampering inspections at used car dealers and fleets statewide. Samples of vehicles (5-10) at each location are selected by ARB field staff based on their experience of vehicles most likely to fail. The selected vehicles undergo a complete visual inspection, and any violations are categorized as tampering (deliberate removal/disconnection of emission controls), or nonconforming (worn or defective emission controls). All violators are issued a Notice to Correct (dealers) or a Notice of Violation (fleets) requiring proof of repair prior to sale or use of the vehicle(s). Tampered vehicles also require a smog certificate along with settlements in lieu of litigation and civil penalties based on the number of tampered vehicles found and any previous violations with a maximum penalty of $500 per vehicle. All case settlements are processed by section staff, however delinquent cases are referred to ARB Legal for small claims filing with the original inspector presenting the case to the court.
When the dealer and fleet program began over twelve years ago, almost every dealer was issued a Notice to Correct for multiple violations. Since then, the number of violations has steadily decreased due in part to our continued inspection efforts, support from the Independent Automobile Dealers Association, and newer model computer controlled vehicles which are less likely to be tampered. A similar drop in tampering has occurred at commercial fleets with one notable exception being the taxi cab fleets. Due to the reduction in tampering, some of the section's resources have been redirected into a remote sensing based compliance assistance program for taxi and shuttle fleets called the "Clean Fleets Program." This program is a joint effort by the ARB and the Los Angeles County District Attorney's Office (LADA) which evolved out of an

LADA civil prosecution against Bell Cabs. Each taxi fleet voluntarily signs an agreement to participate in good faith with the program requirements in lieu of ARB fleet inspections and LADA civil prosecution. Each taxi within the fleet is measured three times with the ARB's remote sensing equipment. Any vehicles that exceed the emissions cut-points on two of the three measurements are required to be repaired and Smog Checked. Since the program began in 1993, average fleet failures have dropped from over thirty percent down to thirteen percent, which is close to the average vehicle failure rate of the Smog Check program. Due to the fact that taxis can be driven over 100,000 miles a year, cleaning up a gross emitting taxi can produce a large air quality benefit. During 1998, the program has grown to include more than 1,500 taxis in Los Angeles County alone. Based on the success of the program, ARB staff is working with the LADA to expand this program into other counties statewide.

Although in recent years the section has been redirected more towards roadside testing programs, enforcement efforts to prevent the sale and use of new non-California certified vehicles continues to be an important program. A major portion of the ARB's illegal vehicle cases are triggered by Notifications of Noncompliance (NoN). The ARB receives a NoN from Smog Check stations statewide for every federal vehicle with under 7,500 miles that undergoes a Smog Check. If the NoN is issued to a dealer or fleet, an ARB field investigator will inspect the vehicle(s) and determine if it is legal under California law. If an inspector can not visit the location a timely manner, the NoN is referred to ARB Legal for settlement. All investigated illegal vehicle cases are prepared by MSOD and are referred to ARB Legal for settlement. These efforts have been highly effective in removing illegal vehicles from California and obtaining reasonable penalties for violations.

Two other sources of illegal vehicles continue to remain a problem - rental fleets and auctions. In the past, the ARB has investigated and settled several rental fleet cases involving the intrastate rental of illegal vehicles. These types of cases require intensive staff resources to review rental and leasing records; however, a continued vigilance is required at both rental fleets and large leasing companies. The wholesale auctions also continue to be a source of both illegal and tampered vehicles. The twelve large wholesale auction houses in California sell thousands of vehicles each week. Since the vehicles are wholesaled, they bypass the Smog Check program until an ultimate retail purchaser acquires the vehicle. ARB staff has traced many illegal vehicles back to the large wholesale auctions. Continued efforts need to be focused at the auction level to prevent these illegal vehicles from being ultimately sold to California residents. The chart on Attachment 2 shows the number of combined anti-tampering and illegal vehicle cases from 1990 – 1998.

Compliance/Enforcement Authority:
Health and Safety Code Sections:
43151-53 - prohibits the importation, sale, and use of new non-California certified vehicles;

43154 - provides up to $5000 for each violation of HSC §43151-53;

43012 - right-of-entry to dealerships/up to $1000 per vehicle for selling a cited vehicle;

43008.6 - right-of-entry to commercial fleets/up to $1500 per vehicle for each violation;

43016 - provides up to $500 for each vehicle or engine in violation

7. Heavy-Duty Diesel Branch (Northern and Southern Sections)

The ARB, in cooperation with the California Highway Patrol (CHP), is testing heavy-duty trucks and buses for excessive smoke and tampering. Every heavy-duty vehicle traveling in California, including those registered in other states and foreign countries, is subject to inspection and testing. Although only two percent of California's vehicles are heavy-duty, they produce about thirty percent of the oxides of nitrogen and sixty-five percent of the soot emissions attributed to motor vehicles.

The roadside Heavy-Duty Vehicle Inspection Program (HDVIP), and its companion fleet Periodic Smoke Inspection Program (PSIP), both operate to reduce excessive emissions from in-use heavy-duty vehicles. Under these programs, heavy-duty vehicles are subject to smoke opacity and tampering inspections at CHP weigh stations, random roadside locations, California/Mexico ports-of-entry, and at over (14,000) fleets statewide. Currently, the ARB has (18) field staff operating these programs northern and southern California sections. To conduct a smoke inspection, ARB staff selects a vehicle for the test and directs it into a special inspection lane where the wheels are chocked for safety. The driver is instructed to rapidly depress the accelerator several times in neutral until maximum governed speed is reached. This process cleans out any residual soot build-up prior to the test and ensures that the engine is in proper mechanical order. The inspector records the engine's RPM at idle and at its maximum governed speed, and proceeds with the Society of Automotive Engineers (SAE) J1667 Snap-Acceleration Test. A smoke sensing meter is positioned just above, or a probe is placed just inside, the vehicle's exhaust stack. While the driver rapidly accelerates the engine in neutral, the meter or probe measures the opacity of the smoke being emitted. This process is repeated three times and the opacity readings are averaged. The inspector records the engine data, and completes the test by performing a visual inspection for signs of tampering. All 1991 and newer engines must not exceed forty percent smoke opacity, and all pre-1991 engines must not exceed fifty-five percent smoke opacity. The penalties for excessive smoke emissions are graduated as follows:

Notice of Violation:
For pre-1991 vehicles that have smoke opacities between fifty-five percent and seventy percent with no citations in the past twelve months, a Notice of Violation (NOV) is issued. The NOV is similar to a "fix it ticket" because it has no penalties attached if repairs and proof of correction are provided to the ARB within forty-five days. Only one NOV may be issued during a twelve month period, and failure to provide timely proof of correction will convert the NOV to a citation.

First Level Citation:
For pre-1991 engines with seventy percent or greater smoke opacity and 1991 and newer engines with greater than forty percent opacity and no citations in the past twelve months, a first level citation is issued. The penalty is $300 if repairs and proof of correction are provided to the ARB within forty-five days. After forty-five days, the penalty increases to $800.

Second Level Citation:
The penalty for any further violations within a twelve month period is $1800. In addition, proof of correction must be provided in order to clear the citation. In extreme cases, the CHP may take a vehicle out of service for an outstanding citation.

The chart on Attachment 3 shows the program results for the HDVIP from 1991 - 1998. As noted on the attachment, the Board redirected the Heavy-duty Diesel Branch (HDDB) on October 15, 1993 to conduct reformulated diesel fuel performance investigations due to allegations of engine problems from diesel users. This investigation led to the AB 3290 Diesel Fuel Reimbursement Program that the HDDB administered ending in 1995. During 1995 – 1996, HDDB staff was directed to conduct a test program for the performance of the Cleaner Burning Gasoline (CBG) program. In 1997, the staff conducted field studies of the new SAE J1667 test procedure leading to its adoption into the ARB's HDVIP and PSIP regulations in December 1997. The HDVIP has been back in full operation since June 1, 1998. Although the 1998 data only includes June through November 1998, the data shows not only a lower failure rate, it also shows a much lower rate of citation appeals. The fact that the California Trucking Association and manufacturer groups are supporting the HDVIP, may be encouraging truck owners to focus their efforts on proper maintenance and not on citation appeals.

The PSIP is another program to ensure that all of California's heavy-duty vehicle fleets are properly maintained and are operating with the lowest possible emissions. All California based fleets of two or more heavy-duty vehicles, are required to perform annual smoke and anti-tampering inspections. The same opacity requirements of the HDVIP apply to the PSIP. All testing must conform to the SAE J1667 snap acceleration procedure, and any vehicles that do not pass the test must be repaired and retested. Fleet

owners are not required to inspect vehicles that are powered by new (not rebuilt) engines that are less than four years old. To ensure compliance, the ARB will randomly audit fleets' maintenance and inspection records, and audit test a representative sample of their vehicles. The compliance activities for the PSIP will be increased significantly in 1999.

Compliance/Enforcement Authority:
Health and Safety Code Sections:
44011.6 - defines the inspection and citation structure of the HDVIP;

43701 – defines the requirements of the PSIP

Heavy-Duty Diesel Engine Settlement

The Regulatory Strategy section within MSCD has worked closely with heavy-duty engine manufacturers, the USEPA, and the ARB Legal Affairs/Executive Office to negotiate settlements with the manufacturers that built and sold, heavy-duty diesel engines that violate the NOx emissions standard. During highway cruise conditions, the effected engines intentionally lean out the fuel mixture to reduce fuel consumption and operating costs, however, the lean mixture also results in very high NOx emissions. The lean condition was programmed to be outside of the normal engine certification test parameters, and the violation was not revealed until on-road monitoring by the USEPA discovered the pattern of high NOx emissions.

The manufacturers included in this settlement; Cummins, Caterpillar, Detroit Diesel Corporation, Navistar, Mack/Renault, and Volvo have agreed to individual settlement amounts that total over twenty million dollars along with corrective repairs when the engines are serviced. The settlements are expected to be finalized by mid-January 1999. The USEPA negotiated similar settlement agreements for violations in the other forty-nine states.

ATTACHMENT 1

IN-USE COMPLIANCE SECTION

IN-USE VEHICLE TESTING AND RECALLS (1990-1998)

YEAR	NUMBER OF ENGINE FAMILIES TESTED	NUMBER OF RECALLS	NUMBER OF VEHICLES RECALLED	*SETTLEMENTS IN LIEU OF CIVIL PENALTIES
1990	32	22	271,973	
1991	30	13	286,711	$10,300,000**
1992	17	31	480,560	$4,750,000***
1993	46	24	156,368	
1994	45	24	149,795	
1995	42	14	111,546	
1996	40	12	130,218	GM adjudication****
1997	35	11	121,683	
1998	38	16	139,104	
TOTAL	**325**	**167**	**1,847,958**	

* Civil penalties must be imposed by a court of competent jurisdiction. Where possible, the ARB settles cases without litigation, collecting settlements in lieu of civil penalties.

** Manufacturer: Ford Motor Company

Reason: Failure to properly report and repair failing catalysts on over 100,000 vehicles

Total Value: $10,300,000

Settlement Features:
$ 200,000 Air Pollution Control Fund
$ 900,000 In-use compliance testing of 30 engine families
$9,000,000 Nine electric and hybrid electric vehicles (includes R&D)
$ 200,000 Studies related to electric vehicle usage and marketability

*** Manufacturer: Mitsubishi

Reason: Failure to provide adequate repairs to approximately 45,000 recalled vehicles

Total Value: $4,750,000

Settlement Features
$ 100,000 Air Pollution Control Fund
$ 450,000 In-use compliance testing of (30 engine families
$4,200,000 Six electric and hybrid vehicles (includes R&D)

**** Adjudication [General Motors 4.3 liter truck engines (potential recall of 33,725 vehicles)]

ATTACHMENT 2

FIELD INSPECTION/TESTING SECTION

ILLEGAL VEHICLE AND ANTI-TAMPERING CASES (1990-1998)

YEAR	NUMBER OF CASES (ILLEGAL VEHICLES & ANTI-TAMPERING)	*TOTAL PENALTIES/ SETTLEMENTS COLLECTED
1990	107	$144,700**
1991	114	$217,739**
1992	51	$76,825
1993	113	$20,658
1994	68	$44,913
1995	71	$34,380
1996	92	$26,180
1997	135	$30,950
1998	87	$31,800
TOTAL	**838**	**$628,145**

* Civil penalties must be imposed by a court of competent jurisdiction. Where possible, the ARB settles cases without litigation, collecting settlements in lieu of civil penalties.

** The increased penalties collected during 1990 and 1991 reflect the settlement of several large illegal rental car cases.

ATTACHMENT 3

HEAVY-DUTY DIESEL BRANCH

HEAVY-DUTY VEHICLE INSPECTION PROGRAM RESULTS (1991-1998)

YEAR	1991	1992	1993	1998*	TOTALS
No. Inspections	857	18,239	19,851	13,085	**52,032**
No. Citations	383	4,431	3,679	1,229**	**9,722**
Failure Rate	44.70%	24.30%	18.50%	9.39%	**18.7%**
No. Cleared	20	2,716	3,620	712	**7,068 (72.7%)**
No. Appealed	3 (0.8%)	487 (11.0%)	669 (18.2%)	31 (2.4%)	**1,190 (12.2%)**
Penalties Assessed	$114,900	$1,341,700	$1,156,700	$300,300	**$2,913,600**
Penalties Collected	$9,300	$856,598	$1,209,102	$191,680	**$2,266,680 (77.8%)**

*(Activity for 6-1-98 through 12-31-98)
The Heavy-Duty Vehicle Inspection program was implemented during 1991. The program was on hiatus from 1994 through May 1998 pending the adoption of the Society of Automotive Engineers (SAE) J1667 test procedure as required by legislation enacted in 1993, Assembly Bill 584 (Stats. 1993, ch. 578). Also, on October 15, 1993, the Board redirected the Heavy-duty Diesel Branch (HDDB) to conduct reformulated diesel fuel performance investigations due to allegations of engine problems from diesel users. This investigation led to the AB 3290 Diesel Fuel Reimbursement Program that the HDDB administered ending in 1995. During 1995 – 1996, HDDB staff was directed to conduct a test program for the performance of the Cleaner Burning Gasoline (CBG) program. In 1997, the staff conducted field studies of the new SAE J1667 test procedure leading to its adoption into the ARB's HDVIP and PSIP regulations in December 1997.

**Includes (238) Notices of Violation

ATTACHMENT 4

MSCD/ADVANCED ENGINEERING SECTION

ON-BOARD DIAGNOSTICS II VEHICLE TEST PROGRAM (1996-1998*)

YEAR	MAKE	MODEL	COLOR	LICENSE	PROJECT	VEH. #	AGENCY	IN	OUT	LAST TEST	MILEAGE IN	MILEAGE OUT
1997	PLYMOUTH	VAN VOYAGER SE	GREEN	3SBW993	2R9619	1	THRIFTY RSMD	10/25/96	2/14/97	2/6/97	6346	12/29/54
1996	CHEVY	CORSICA 4DR.	WHITE	3PTA593	2R9619	2	NATIONAL LAX	10/31/96	11/15/96	11/5/96	14352	15127
1997	DODGE	INTREPID 4DR.	GRAY	3SDX367	2R9619	3	THRIFTY RSMD	11/26/96	2/14/97	2/6/97	7837	8580
1997	TOYOTA	CAMRY LE 4DR.	GRAY	3SXW818	2R9619	4	ENTERPRISE	2/18/97	8/6/97	8/12/97	6341	13436
1997	SUBARU	S/W LEGACY L 5DR.	DK. BLUE	3SFD507	2R9619	5	HERTZ LAX	2/21/97	3/25/97	3/21/97	25520	28210
1996	FORD	MUSTANG CONV.	SILVER	3PUF914	2R9619	6	ENTERPRISE	4/2/97	5/14/97	5/13/97	25520	28210
1997	CHEVY	SUBURBAN LS 1500	RED	3UUH601	2R9619	7	BORLA	4/23/97	5/31/97	5/29/97	2935	3999
1997	NISSAN	SENTRA GXE 4DR.	WHITE	3SYW292	2R9619	8	ENTERPRISE	5/6/97	6/25/97	5/28/97	13796	15870
1997	MAZDA	MIATA 2DR. CONV	WHITE	3UJE611	2R9619	9	ENTERPRISE	5/28/97	7/31/97	7/30/97	5899	9130
1997	HONDA	ACCORD LX 4DR.	GREEN	3UCW853	2R9619	10	BUDGET W. W.	6/3/97	6/13/97	9/10/97	6605	8238
1997	MITSU.	MONTERO SPORT	GREEN	MT-1092	2R9619	11	MITSUBISHI	6/1/97	6/13/97	6/10/97	7735	8238
1997	FORD	ESCORT LX 4DR.	RED	3SBB779	2R9619	12	ENTERPRISE	4/15/97	9/16/97	9/15/97	16691	20031
1997	HONDA	PRELUDE SH 2DR.	GREEN	NO PLATE	2R9619	13	HONDA	6/11/97	6/17/97	6/16/97	5147	5553
1997	MITSU.	GALANT LS 4DR.	BLACK	DLR14849	2R9619	14	BUDGET W. W.	6/23/97	7/23/97	7/16/97	4595	5942
1997	MAZDA	PROTEGE 4DR.	BLUE	3UMF541	2R9619	15	HERTZ ONT.	6/19/97	10/22/97	10/21/97	1773	7667
1997	JAGUAR	XK8 2DR. CONV.	BLUE	DTM 68 52	2R9619	16	JAGUAR MFG.	6/23/97	7/15/97	7/10/97	75	733
1997	MITSU.	GALANT LS 4DR.	GREEN	3THU575	2R9619	17	MITSUBISHI	7/10/97	7/22/97	7/15/97	11583	12453
1997	TOYOTA	AVALON XL 4DR.	MAROON	3TZE753	2R9619	18	HERTZ BURB.	7/22/97	11/25/97	11/24/97	10736	18733
1997	TOYOTA	CAMRY XLE 4DR.	GRAY	3TCV751	2R9619	19	TOYOTA MFG.	8/22/97	9/5/97	9/4/97	11392	12030
1996	HONDA	CIVIC EX 2DR.	GREEN	3RYR965	2R9619	20	LIGHT SPEED	9/16/97	9/18/97	9/17/97	18787	18838
1997	MITSU.	ECLIPSE GS-T	RED	3VWV413	2R9619	21	STILLEN PERF.	10/6/97	10/6/97	NOT TESTED	569	581
1997	MITSU.	ECLIPSE CONV.	RED	3UPR580	2R9619	22	MITSUBISHI	10/15/97	10/16/97	10/16/97	15712	15751
1996	HONDA	CIVIC EX 2DR.	RED	3TCR785	2R9619	23	JACKSON RAC.	10/23/97	10/27/97	10/27/97	17678	17730
1997	TOYOTA	4RUNNER 4X4	SILVER	3RFW213	2R9619	24	TOYOTA MFG.	11/5/97	11/20/97	11/20/97	28493	29269
1997	FORD	P/U F-250 4X4 LAR.	MAROON	44M 879	2R9619	25	FORD MFG.	11/17/97	11/26/97	11/26/97	16959	17927
1997	MERCURY	GRAND MARQUIS	SILVER	3SYP291	2R9619	26	ENTERPRISE	1/6/98	2/3/98	2/2/98	15100	17617
1997	MERCURY	GRAND MARQUIS	BLUE	3UQP436	2R9619	27	ENTERPRISE	1/15/98	2/17/98	2/16/98	18969	20564
1998	DODGE	STRATUS 4DR.	WHITE	3WEA297	2R9619	28	ENTERPRISE	1/23/98	9/3/98	3/4/98	5501	12602
1996	MAZDA	MIATA CONV.	WHITE	3RVM660	2R9619	29	JACKSON RAC.	1/29/98	2/5/98	2/4/98	9004	9063
1998	MERCURY	GRAND MARQUIS	SILVER	3WHW463	2R9619	30	ENTERPRISE	2/4/98	5/26/98	5/25/98	1533	10077
1998	LEXUS	SC 400 2DR.	BLACK	DIST. 27202	2R9619	31	LEXUS	2/24/98	3/4/98	3/3/98	3354	3814
1997	MERCURY	GRAND MARQUIS	BLUE	3UQP436	2R9619	32	ENTERPRISE	3/5/98	5/27/98	5/26/98	22726	27706
1997	MERCURY	GRAND MARQUIS	WHITE	3SYP321	2R9619	33	ENTERPRISE	3/6/98			16713	
1998	VOLVO	S 70 4DR.	WHITE	4BAJ114	2R9619	34	HERTZ LAX	3/26/98	4/29/98	4/27/98	1985	4341
1998	MERCURY	GRAND MARQUIS	BLUE	3WHW461	2R9619	35	ENTERPRISE	4/3/98	9/2/98	8/31/98	7809	12532
1998	FORD	EXPLORER XLT	GREEN	4BAC761	2R9619	36	HERTZ LAX	4/10/98	6/9/98	6/5/98	1357	6311
1998	DODGE	P/U RAM 1500 SLT	WHITE	5N87706	2R9619	37	NELSON/PRISE	4/14/98	11/13/98	11/12/98	9488	18445
1998	FORD	CONTOUR GL 4DR.	BLUE	3VEV065	2R9619	38	ENTERPRISE	4/21/98	6/17/98	6/16/98	29453	32993
1998	DODGE	STRATUS 4DR.	WHITE	3WEA297	2R9619	39	ENTERPRISE	4/28/98	5/28/98	5/27/98		
1998	CHEVY	CAMARO Z28	SILVER	4AAH251	2R9619	40	GM MFG.	5/14/98	5/15/98	NOT TESTED	4650	4687
1998	VOLVO	S/W V90	PLUM	DEW974	2R9619	41	VOLVO MFG.	6/5/98			21956	
1998	DODGE	INTREPID 4DR.	WHITE	4AHU240	2R9619	42	ENTERPRISE	9/9/98	11/10/98	11/4/98	16767	20046
1998	MITS.	GALANT ES 4DR.	TAN MET.	3WGP086	2R9619	43	ENTERPRISE	9/16/98			17244	
1998	DODGE	P/U RAM 1500 SLT	WHITE	5S52025	2R9619	44	ENTERPRISE	9/30/98			16032	
1998	DODGE	P/U RAM 1500 SLT	RED	5N88002	2R9619	45	ENTERPRISE	10/27/98	10/28/98	10/27/98	16150	16153
1999	JEEP	CHEROKEE 4X4	GOLD	4BXA996	2R9619	46	ENTERPRISE	11/13/98			2894	
1998	JEEP	CHEROKEE 4X4	WHITE	4AGB312	2R9619	47	ENTERPRISE	11/17/98			14942	
1998	FORD	MUSTANG CONV.	WHITE	4BCE406	2R9619	48	ENTERPRISE	11/17/98			17587	
1998	FORD	WJNDSTAR GL	SILVER	3XKF365	2R9619	49	ENTERPRISE	11/18/98			25485	
1998	FORD	EXPLORER XLT	GREEN	4AEF200	2R9619	50	ENTERPRISE	11/20/98			16581	
1998	FORD	EXPEDITION 4X4	SILVER	3XPU151	2R9619	51	ENTERPRISE	11/25/98			27064	
1998	VOLKS	BEETLE	SILVER	DIST. 11976	2R9804	1	VOLKS MFG.	3/9/98	5/9/98	3/24/98	1522	4549
1998	VOLVO	S/W V90	PLUM	DEW 974	2R9804	2	VOLVO MFG.	6/5/98	11/19/98	9/15/98	21956	23457
1999	PORSCHE	911 CARRERA	BLACK	16403 DIST.	2R9804	3	PORSCHE MFG.	10/20/98	11/3/98	10/30/98	10351	11286
1999	MITS.	DIAMANTE LS 4DR.	PURPLE	47M 191	2R9804	4	MITS. MFG.	11/13/98			10241	

*Program commenced with the introduction of OBD II systems.